

Part A (Answer all questions on the answer grid provided)

1. The scientific study of heredity is called
 - a) Hereditology
 - b) Biology
 - c) Genetics
 - d) Geneology

2. What is the name given to the hereditary unit which controls a particular characteristic?
 - a) Trait
 - b) Hereditary factor
 - c) Gene
 - d) Environment

3. Genetic information is:
 - a) Carried on structures called chromosomes that are contained within the nucleus of cells
 - b) A chemical blueprint that codes for the characteristics of organisms
 - c) Locked into a complex chemical substance commonly referred to as DNA
 - d) All of the above

4. Most human body cells contain:
 - a) 46 pairs of chromosomes
 - b) 46 individual chromosomes
 - c) 23 individual chromosomes
 - d) 23 pairs of matching chromosomes

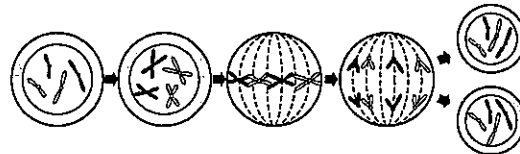
5. Human sperm and ova each contain:
 - a) 23 chromosomes
 - b) 46 chromosomes
 - c) 23 pairs of chromosomes
 - d) A diploid number of chromosomes

6. An organism's gametes are produced through the process of:
 - a) Gene replication
 - b) Mitosis
 - c) Meiosis
 - d) Cell division

7. The process that ensures that each daughter cell is an exact copy of the parent cell is called
- Mitosis
 - Meiosis
 - Myxomoyosis
 - Myopia
8. Which of the following is true for **both** mitosis and meiosis?
- Occurs in all body cells
 - Involves the replication of DNA
 - Produces cells with the same number of chromosomes as the parent cell
 - Produces four daughter cells per division
9. Which of the following cell structures are listed in order of smallest to largest?
- Nucleus, cell, chromosome, gene
 - Chromosome, cell, nucleus, gene
 - Chromosome, cell, gene, nucleus
 - Gene, chromosome, nucleus, cell

Part B (11 marks). Answer all questions on this paper.

The diagrams below show the stages occurring during a cell division.



- Identify the type of cell division shown.
_____ (1m)
- Recall one type of cell which might undergo the type of cell division shown above.
_____ (1m)
- Reproduction and repair are two roles of cell division in multi-cellular organisms. What is the third role?
_____ (1m)

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Questions 4 - 7 refer to the diagram at right.

4. What is the name of this molecule?

_____ (1m)

5. Label the parts a), b) and c) indicated on the diagram.

a) _____

b) _____

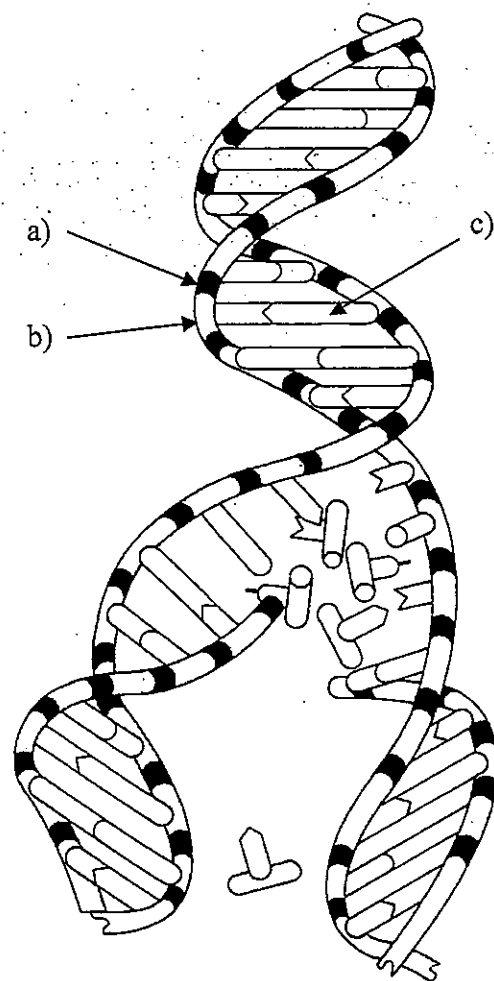
c) _____ (1m)

6. Describe what is happening to this molecule in the illustration.

_____ (1m)

7. Describe the shape of this molecule.

_____ (1m)



8. Why is it usually important that DNA copies itself exactly? Give an example of a situation where this is true.

(2m)

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9. A section of the base code on a DNA molecule is given below.

AGC TTC AGT GGA

- a) How many different bases are there in a molecule of DNA?

_____ (1m)

- b) What would be the order of the bases that pair up with these, on the opposite side of the molecule?

_____ (1m)

End of paper

Name: _____

<p>YEAR 10 MULTIPLE CHOICE ANSWER SHEET</p>

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